

Comparisons of Job Characteristics

Focus Occupation: [Architectural and Engineering Managers \(11-9041\)](#)

Associated Occupation: [Biomedical Engineers \(17-2031\)](#)

[Compare Knowledge](#)

[Compare Skills](#)

[Compare Abilities](#)

[Compare Detailed Work Activities](#)

[Compare Tools and Technologies](#)

<<	Focus occupation element is much lower
<	Focus occupation element is lower
0	Focus occupation element is at a similar level
>	Focus occupation element is at a higher level
>>	Focus occupation element is at a much higher level

Knowledge

Similarity of Focus Occupation to Associated Occupation: 56

Focus Occupation: Architectural and Engineering Managers (11-9041)

Associated Occupation: Biomedical Engineers (17-2031)

Associated Occupation's Key Knowledge Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Biology	3.7	21.2	1.9	<<	Extensive education and/or training may be required
Engineering and Technology	5.7	21.0	23.2	>	Current knowledge level is likely sufficient
Mathematics	9.2	20.2	17.4	<	Expanded education and/or training may be required
Physics	4.3	17.6	13.0	<<	Extensive education and/or training may be required
Design	5.2	16.6	19.0	>	Current knowledge level is likely sufficient
Computers and Electronics	8.4	16.5	16.9	0	Current knowledge level may be sufficient
Chemistry	4.8	16.3	6.6	<<	Extensive education and/or training may be required
Medicine and Dentistry	3.7	14.4	1.2	<<	Extensive education and/or training may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Skills

Similarity of Focus Occupation to Associated Occupation: 55

Focus Occupation: Architectural and Engineering Managers (11-9041)

Associated Occupation: Biomedical Engineers (17-2031)

Associated Occupation's Key Skills Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating		Evaluation of Focus Occupation
Science	4.5	17.1	8.7	<<	Extensive development of skills in this area may be required
Complex Problem Solving	9.1	15.1	13.0	<	A higher skill level may be required
Judgment and Decision Making	9.4	15.1	12.5	<	A higher skill level may be required

Operations Analysis	5.0	14.6	13.9	0	Current skill level may be sufficient
Mathematics	6.2	14.2	11.7	<	A higher skill level may be required
Technology Design	2.6	11.7	3.3	<<	Extensive development of skills in this area may be required
Programming	2.2	10.1	2.1	<<	Extensive development of skills in this area may be required
Installation	1.7	7.5	1.0	<<	Extensive development of skills in this area may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Abilities		Similarity of Focus Occupation to Associated Occupation: 95			
Focus Occupation: Architectural and Engineering Managers (11-9041) Associated Occupation: Biomedical Engineers (17-2031)					
Associated Occupation's Key Abilities Elements	Average Rating, All Occupations	Associated Occupation's Rating	Focus Occupation's Rating	Evaluation of Focus Occupation	
Deductive Reasoning	10.6	17.6	13.9	<<	Extensive improvement in abilities may be required
Inductive Reasoning	10.2	16.8	12.5	<<	Extensive improvement in abilities may be required
Written Comprehension	11.0	16.6	15.2	0	Current ability level may be sufficient
Problem Sensitivity	11.1	16.3	13.9	<	Some improvement in abilities may be required
Oral Comprehension	12.5	16.1	15.0	0	Current ability level may be sufficient
Originality	7.6	14.5	10.5	<<	Extensive improvement in abilities may be required
Near Vision	11.1	13.9	12.5	<	Some improvement in abilities may be required
Category Flexibility	9.0	13.6	11.4	<	Some improvement in abilities may be required
Information Ordering	9.9	13.6	12.0	<	Some improvement in abilities may be required
Mathematical Reasoning	6.3	13.6	13.3	0	Current ability level may be sufficient
Visualization	7.5	12.4	10.1	<	Some improvement in abilities may be required

The maximum possible rating is 25.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Activities that Both Occupations Have in Common		Similarity of Focus Occupation to Associated Occupation: 82
Focus Occupation: Architectural and Engineering Managers (11-9041) Associated Occupation: Biomedical Engineers (17-2031)		
Work Activities	Exclusivity of Activity	
Advise clients or customers	19	

Advise clients regarding engineering problems	67
Analyze project proposal to determine feasibility, cost, or time	69
Communicate technical information	4
Confer with engineering, technical or manufacturing personnel	25
Coordinate engineering project activities	71
Delegate authority for engineering activities	73
Develop policies, procedures, methods, or standards	21
Direct and coordinate activities of workers or staff	3
Estimate time needed for project	64
Evaluate costs of engineering projects	70
Evaluate engineering data	60
Plan testing of engineering methods	72
Prepare reports	8
Prepare technical reports or related documentation	22
Read technical drawings	7
Resolve engineering or science problems	46
Understand engineering data or reports	48
Use intuitive judgment for engineering analyses	72
Use project management techniques	47
Use scientific research methodology	21
Use technical regulations for engineering problems	61
Write business project or bid proposals	48

Not all positions in these occupations will necessarily perform all of the listed activities. The exclusivity rating is an indication of how unique the activity is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations engage in that activity.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.

Tools and Technologies that Both Occupations Have in Common

Similarity of Focus
Occupation to Associated
Occupation: 67

Focus Occupation: Architectural and Engineering Managers (11-9041)
Associated Occupation: Biomedical Engineers (17-2031)

Tools and Technologies	Exclusivity
Autoclave and sterilizer equipment and accessories	12
Business function specific software	1
Computer data input devices	2
Computers	1
Content authoring and editing software	1
Data management and query software	1
Electrochemical measuring instruments and accessories	9
Indicating and recording instruments	2
Industry specific software	1
Laboratory enclosures and accessories	17
Laboratory incubating equipment	20
Pressure measuring and control instruments	10
Spectroscopic equipment	10
Viewing and observing instruments and accessories	4

Not all positions in these occupations will necessarily use all of the listed tools and technologies. The exclusivity rating is an indication of how unique the tool or technology is amongst all occupations. The maximum rating is 100. High scores indicate that only a small number of occupations use that tool or technology.

Source: Alaska Department of Labor and Workforce Development, Research and Analysis Section analysis of O*NET (Occupation Information Network) data.